DETAILED ACTION

Claims 1-39 and 60-62 have been cancelled. Claims 63-65 have been newly added.

Election/Restrictions

Applicant's election with traverse of Claims 50 and 58 in the reply filed on 11/22/10 is acknowledged. The traversal is on the ground(s) that there is burden of search among the inventions. This is not found persuasive because the restriction requirement was made under PCT Rule 13.1 (Lack of Unity) in this 35 USC 371 application. Unity was properly broken and burden of search is not a consideration.

The requirement is still deemed proper and is therefore made FINAL.

Claims 40-49, 51-57, 59, and 63-65 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 11/22/10. It is noted that claims 63-65 depend upon cancelled claim 60 and that the method of claim 60 does not correspond to the methods of elected claims 50 and 58. The methods have different steps and goals.

Specification

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 50 and 58 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

Claims 50 and 58 are not original claims and these claims have been substantively amended. No basis has been pointed to in support of these claims and none is apparent. Applicant is requested to point to basis in the specification for each limitation in the claims.

Claims 50 and 58 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The examples indicate that human pleiotrophin was expressed in a mouse embryonic stage 9.5-15 pancreatic bud library. Its expression was determined in various tissues of wild-type, fasted, and ob/ob (genetically obese) mice. Its expression was determined in mice on a high fat diet. (See at least Figures 2A-C.)

Example 8 discloses that in vitro, stable mouse embryonic stem (ES) cells expressing Pax4 were generated. Pax4 and wild type ES cells were cultured to allow the formation of embryoid bodies. Embryoid bodies were subsequently plated, enzymatically dissociated, and replated. After dissociation, cells were cultured in a differentiation medium containing various

growth factors. Additionally DG001 enriched supernatant of 293 cells was added every second day until day 40. Under such conditions, the expression of insulin was induced by DG001 (Fig. 3). The results shown in Figure 3 demonstrate a significant induction of the differentiation of insulin-producing cells, if DG001 is added in later stages of differentiation.

Examples 9 and 10 are prophetic and do not disclose any experiments actually performed.

The specification does not disclose nor exemplify administering DG001 polypeptide or a functional fragment thereof to treat any disease or condition embraced by the claims. No regeneration of any pancreatic cells or tissues is disclosed. No modulation of pancreatic development in a subject is disclosed.

Claim 50 is directed to treating pancreatic disease, obesity, metabolic syndrome, metabolic disease, and metabolic dysfunction by administering a DG001 polypeptide or a functional fragment thereof.

Claim 58 is direct to the treatment, alleviation and/or prevention of pancreatic disease, obesity, and/or metabolic syndrome, modulation of pancreatic development, and/or regeneration of pancreatic cells or tissues.

Neither claim requires any specific outcome from the treatment. As such, the claims are interpreted as including prevention and cure of all recited conditions and treatment of all aspects of the recited conditions. The specification does not disclose that DG001 or fragment thereof could be used to prevent or cure any disease embraced by the claims. There is no evidence nor reason to believe that DG001 would have this effect.

Claims 50 and 58 are interpreted as including treating all pancreatic diseases such as pancreatic cancer and pancreatitis.

Claim 50 is interpreted as including treating all metabolic diseases such as phenylketonuria (PKU) and porphyria.

Claims 50 and 58 are interpreted as including treating all causes of obesity including Cushing's syndrome and polycystic ovary syndrome (PCOS).

Claims 50 and 58 are interpreted as including treating all aspects of metabolic syndrome including hypertension and high blood lipid levels.

The specification does not disclose that DG001 or fragment thereof can be used to treat, prevent, or cure any of these conditions. There is no evidence nor reason to believe that adminstering a DG001 polypeptide would treat these conditions.

The specification discloses on page 5 that DG001 refers to human pleiotrophin. However, other portions of the specification refer to pleiotrophin from other species and sequence variants. (See for example paragraph bridging page 7-8.) The claims are not considered to be limited to the protein of SEQ ID NO: 2. (See page 40 and Figure 1B.) In the absence of a clear and limiting definition of DG001 polypeptide or a sequence identifier, the claims are interpreted as including all pleiotrophins and variants. The specification does not disclose the structure of all pleiotrophins that could be used in the claimed methods. It is not known what the structure of a functional fragment of a DG001 polypeptide would be. It is noted that "DG001" is not an art understood term used in the prior art for this protein family.

In In re Wands (8 USPQ2d 1400 (CAFC 1988)) the CAFC considered the issue of enablement in molecular biology. The CAFC summarized eight factors to be considered in a determination of "undue experimentation." These factors include: (a) the quantity of experimentation necessary; (b) the amount of direction or guidance presented; (c) the presence or absence of working examples; (d) the nature of the invention; (e) the state of the prior art; (f) the relative skill of those in the art; (g) the predictability of the art; and (h) the breadth of the claims.

The present claims are an invitation to experiment and would require undue experimentation. The breadth of the claims is large and there are no working examples that would correlate to the claimed methods of treatment. It is not considered to be so predictable that the in vitro results of Example 8 could be extrapolated to enable the claimed methods.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 50 and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by Colley et al. (U.S. Patent Publication 2003/0202960).

Colley et al. discloses using pleitrophin (PTN) as an angiogenic factor in treating heart disease (an aspect of diabetes, a pancreatic disease), diabetic neurovasculopathy, and diabetic ulcers. See at least abstract, claims, and pages 1-4. DG001 is another name for PTN. See at least page 5 of the instant specification.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne P. Allen whose telephone number is (571)272-0712. The examiner can normally be reached on Monday-Friday, 5:30 am - 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Stucker can be reached on 571-272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marianne P. Allen/
Primary Examiner, Art Unit 1647

mpa